



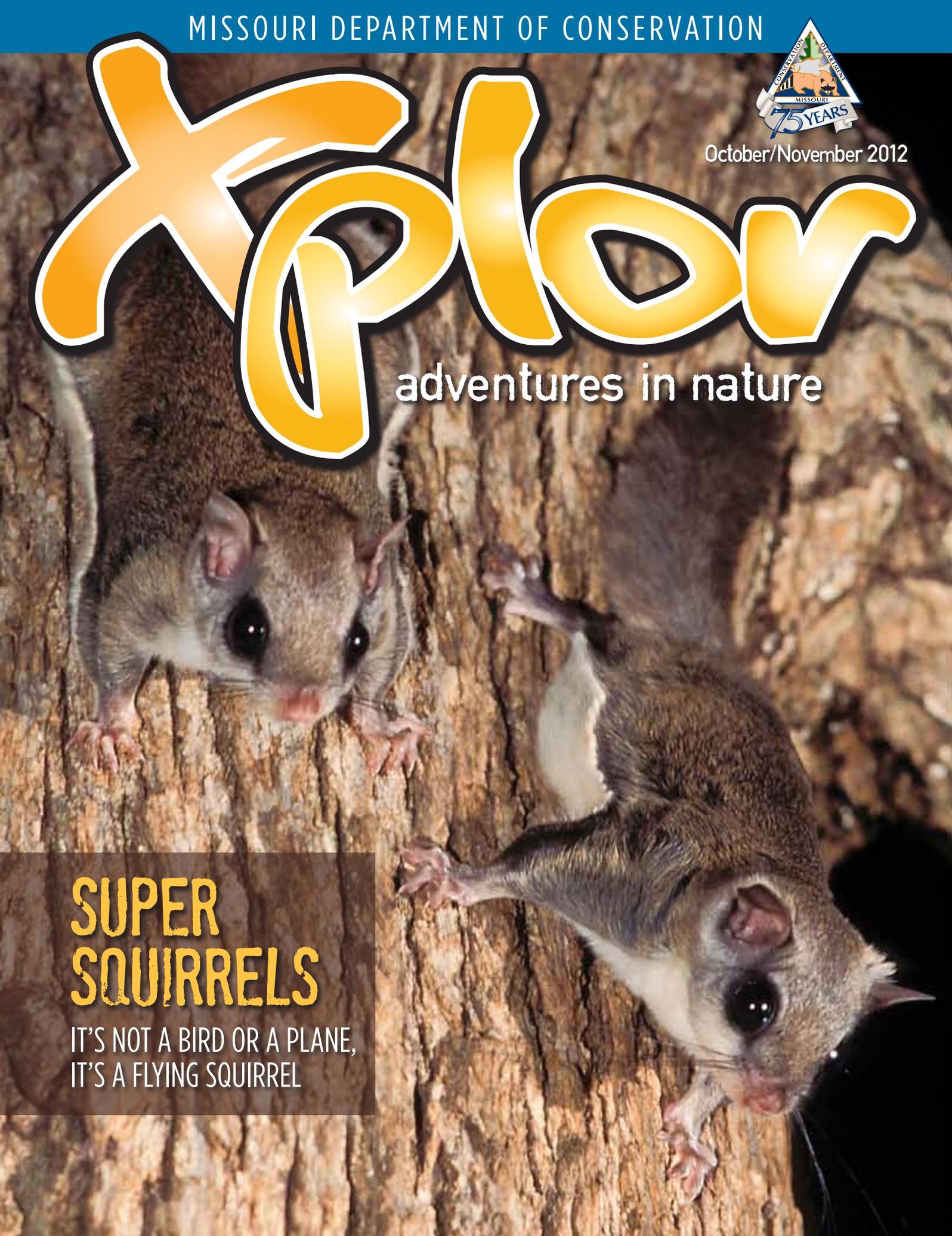
October/November 2012

# Xplor

adventures in nature

## SUPER SQUIRRELS

IT'S NOT A BIRD OR A PLANE,  
IT'S A FLYING SQUIRREL



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**Share *Xplor* with friends.**

## ON THE COVER



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by Jim Rathert

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It's not a bird or a plane, it's a flying squirrel!

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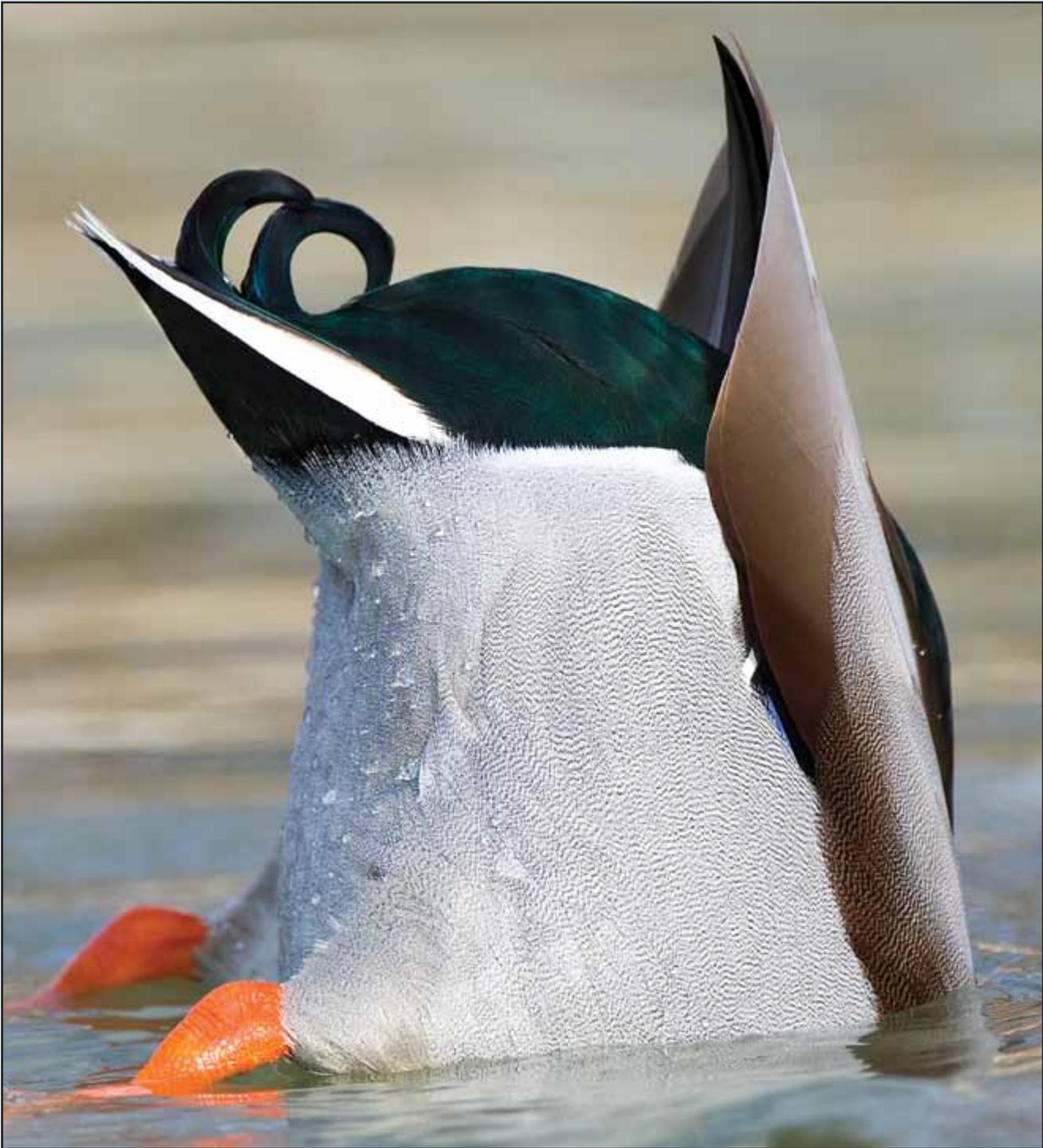


## ON THE WEB

Visit [xplormo.org](http://xplormo.org) for cool videos, sounds, photos, fun facts and more!

# WHAT IS IT?

**DON'T KNOW?**  
Jump to Page 16 to find out.



- ① I huddle in puddles.
- ② Insects and seeds fit the bill.
- ③ A little dabble do me.
- ④ Bottoms up.

# you discover

Northern cardinal

American goldfinch

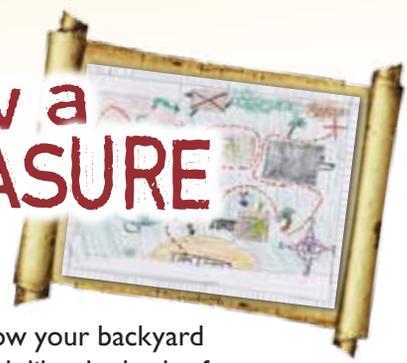


## Join Project FEEDERWATCH.

Keeping a bird feeder provides easy meals for birds and hours of entertainment for bird-watchers. It also can help scientists learn where birds spend winter and how different bird species are faring. All you have to do is count the birds in your yard a few times each month and send your tallies to Project FeederWatch. For details, flock to [birds.cornell.edu/pfw](http://birds.cornell.edu/pfw).

Nature hustles and bustles in autumn. Birds fly south, leaves change color and mammals scurry about, fattening up for winter. There's lots to discover in October and November. Here are some ideas to get you started.

## Draw a TREASURE MAP.



Think you know your backyard or favorite park like the back of your hand? Then draw a map of it. Show every tree, garden, fence and building. When you have finished, hide a box of trinkets somewhere in your yard, and mark the box's location with an "X" on your map. Then, gather a boatload of pirates—or your friends—and send them on a treasure hunt.



## BAG SOME OWL BARF.

Owls throw up the hard, undigestible parts of their prey in a hairy, bone-filled lump called a pellet. Picking apart a puked-out pellet provides a fun and disgusting way to learn what the owl's been eating. Look for pellets below trees and fence posts, especially those splattered white with owl droppings. Wear plastic gloves to pick up pellets and wrap them in aluminum foil. Bake the wrapped pellets in a 325 F oven for 40 minutes. This will kill any germs in the pellets, making them safe to examine. *Whooo* knew barf could be so fascinating?

# Don't miss the chance to Discover Nature at

See spiders and other creepy critters at **CHARLOTTE'S WEB OF LIFE.** Burr Oak Woods Conservation Nature Center, Blue Springs October 6, 6–9 p.m. For info, call 816-228-3766.

Feed your feathered friends by building a **BIRD FEEDER.** Rockwoods Reservation, Wildwood October 20, 10 a.m.–noon Register at 636-458-2236.

Find tasty **MUSHROOMS ANY TIME OF YEAR.** Cape Girardeau Conservation Nature Center October 18, 6:30–7:30 p.m., ages 8 and older, Register at 573-290-5218.





## EXPLORE a SWAMP.

Now's the perfect time for a romp through the swamp at

Mingo National Wildlife Refuge near Puxico. Fall turns the swamp's cypress trees fiery red, river otters become active and easily seen, and swarms of waterfowl, warblers and other birds refuel at Mingo during migration. Hike the Swampwalk Nature Trail, drive one of the auto routes, or slip a canoe into a ditch or river (be sure to check at the visitor center to see which ones allow canoeing). For info, visit [fws.gov/refuge/mingo](http://fws.gov/refuge/mingo).



## SIGHT in your RIFLE.

If your sharpshooting needs sharpening, head to one of the Conservation Department's shooting ranges. Five shooting ranges are staffed with Department employees and volunteers. These experts can give you the lowdown on how to sight in your deer rifle. If you have that process down, there are dozens of unstaffed ranges scattered throughout the state where you can fire several rounds before deer season. For details, aim your browser at [mdc.mo.gov/node/6209](http://mdc.mo.gov/node/6209).

## Catch LEAF CREATURES.

Leaf litter—fallen leaves on the forest floor—is *literally* crawling with bugs, and it's easy to get a good look at them. Just cut the bottom from a plastic milk jug and place it, spout down, atop a jar filled with water. Tape a stick to the jug and jar to keep them from tipping. Pack leaves loosely into the jug, then set the contraption in a sunny place. As the leaves warm, insects inside will crawl downward where it's cooler and eventually fall into the jar.



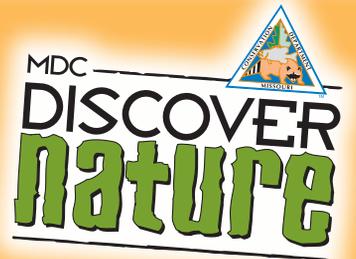
## these fun events.

Bag a deer during the **YOUTH PORTION OF FIREARMS DEER SEASON.**

Statewide  
November 3–4  
For info, visit [mdc.mo.gov/node/3861](http://mdc.mo.gov/node/3861).

Take a halloween hike and dodge **ALIEN INVADERS.**

Springfield Conservation Nature Center,  
October 25 and 26,  
6:30–9:30 p.m.  
For info, call 417-888-4237.



Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at [xplormo.org/node/2616](http://xplormo.org/node/2616).

# PREDATOR

# VS.

# PREY

The struggle to survive isn't always a fair fight. Here's what separates nature's winners from its losers.

Illustration by David Besenger



Texas brown tarantula

## Hair-rows

Tarantulas sling arrow-sharp hairs off their bellies at attackers. The barbed bristles pepper a predator's skin and eyes causing pain and blindness.

## Venom Daggers

Tarantulas stab their hollow, half-inch-long fangs into predators or prey. Then they pump in venom to liquify the punctured creature's insides.

## Lethal Legs

Tarantula hawks use hooked spines on their long legs to grapple with spiders and drag victims back to their nest.

## Beefy Body

A tarantula hawk's body is about the size of your dad's thumb. They're a bit smaller than a tarantula—but not much.

## Stun Gun Bun

A tarantula hawk's business end is tipped with a stinger as long as your pinkie nail. One well-placed thrust delivers a searing sting that paralyzes a spider in seconds.

**AND THE WINNER IS...**

Tarantula hawks are a spider's worst nightmare. After besting a tarantula, the wasp lays an egg on the spider. Once hatched, the baby wasp burrows inside and feeds on the paralyzed—but still living—spider for a month.

**Y**ou've shot your first deer, snapped a photo and attached your notched permit to the deer's leg. Now what? To keep the meat fresh, field dress the deer.

# HOW TO

## HERE'S WHAT YOU DO

**1** Roll the deer onto its back. Carefully make a small, shallow cut in the skin and muscle just below the deer's breast bone.



**2** Insert your knife into this opening with the blade facing up. Using short, shallow strokes, cut through the skin and muscle from the deer's chest to between its back legs. Be careful not to cut into the deer's organs.



**3** If you want to have your deer's head mounted, don't do this step. Otherwise, use your knife, a saw or a small axe and hammer to cut through the rib cage. This takes muscle, so ask an adult for help if you have trouble.



**4** Cut through the windpipe and esophagus.

**5** Cut the connective tissue that holds the deer's organs to its backbone. Roll the deer onto its side and scoop out the organs, being careful not to tear any of them.



## Field Dress a DEER

### HERE'S WHAT YOU NEED

- > **One dead deer**  
(Never approach a deer unless you're sure it's dead—trust us on this one.)
- > **Disposable plastic gloves**
- > **A clean, sharp knife**
- > **Paper towels**
- > **Rope**
- > **An experienced adult**

**6** Use your knife, a saw or a small axe and hammer to cut through the pelvic bone. Guide the intestines through this opening, then cut around the anus to separate it from the rest of the deer.

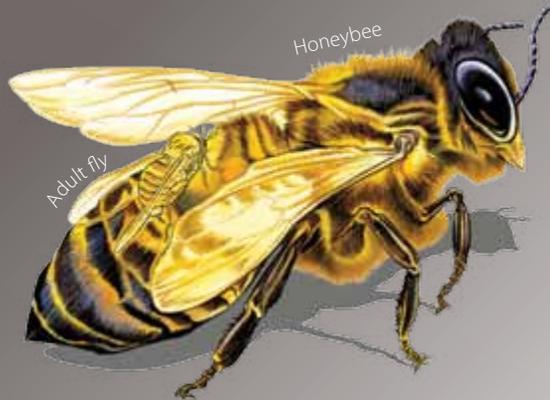


Use paper towels to clean any dirt, hair, feces or organ residue from the meat.

Prop the deer open with clean sticks, then hang it head up in a shady, breezy place. Let it cool and drain for about an hour before moving it.

# Nature's ZOMBIE

This Halloween, you might see make-believe zombies lumbering around seeking tricks-and-treats. These costumed creatures won't eat your flesh or hijack your brain—that only happens in scary, made-up movies. For some animals, though, zombies are all too real.



Honeybee

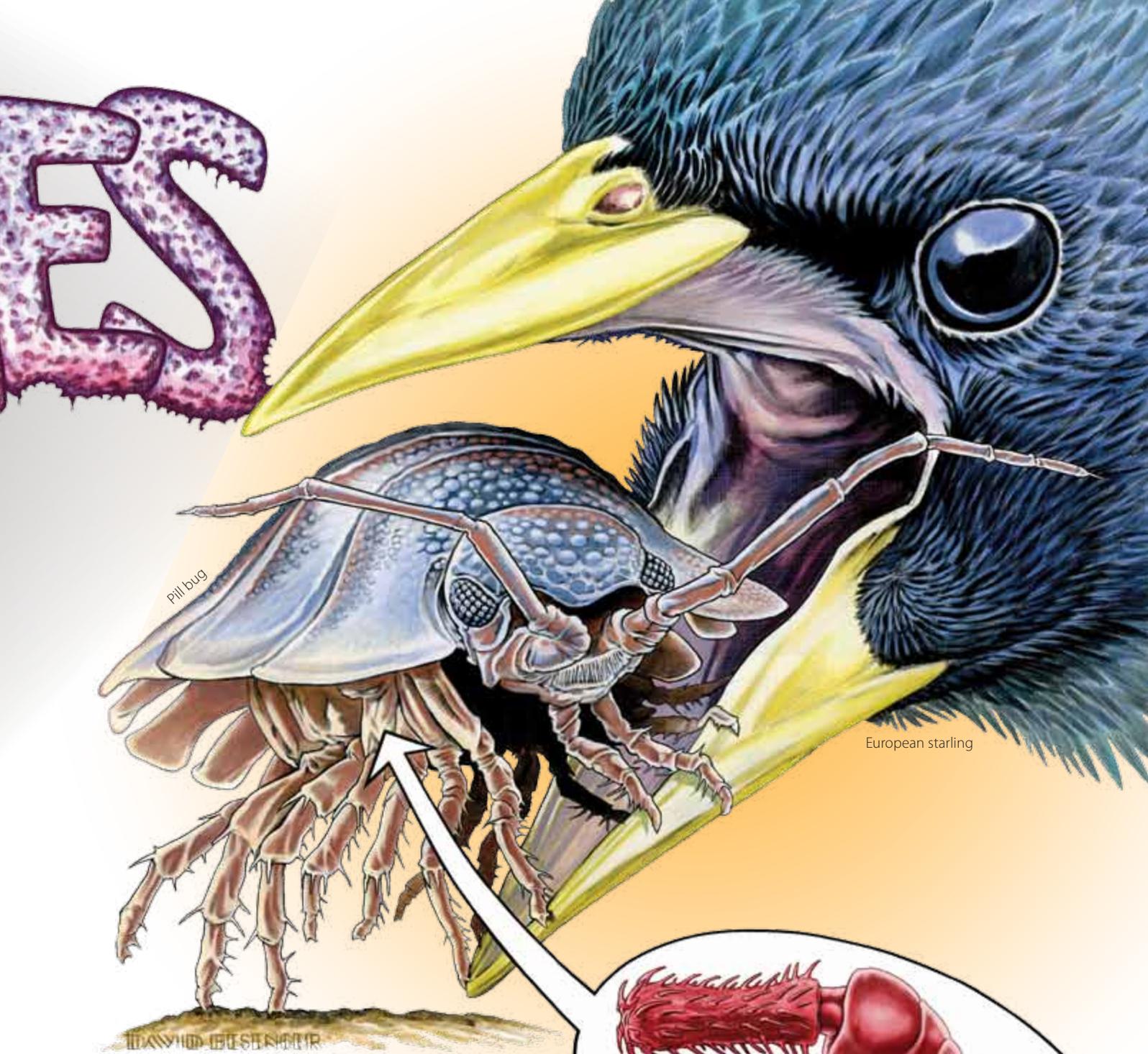
Adult fly



## Flight of the Living Dead

In the blink of an eye, a tiny, fiendish fly lands on a honeybee, stabs its blade-sharp bottom into the bee's back, and injects dozens of eggs. The honeybee is dead at this point—it just doesn't know it. The eggs hatch into zombie-like **maggots** that begin devouring the bee from the inside out. To keep their meal alive as long as possible, the maggots munch unimportant organs first. Eventually, though, they arrive at the bee's brain and chow down, causing the bee to lose control of its own body. It bumbles from its hive in a daze—usually at night—and flies toward a light. Soon after, the bee goes belly-up, and the maggots squirm out of its neck to begin turning into adult flies.





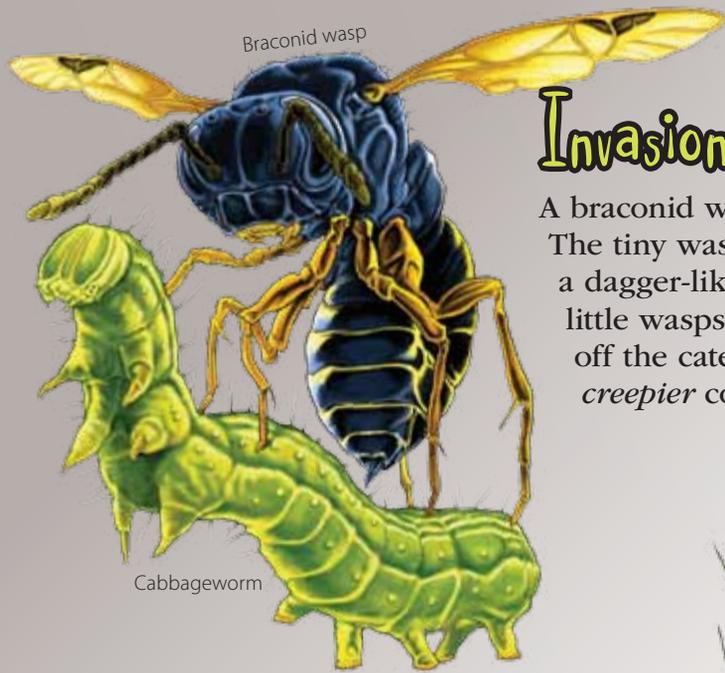
Pill bug

European starling

Spiny-headed worm

## The Great Brain Robbery

For most of its life, a spiny-headed worm uses its nightmarish mouthparts to suck food from a pill bug's intestines. But when the worm wants to lay eggs, it hijacks the pill bug's brain, causing the bug to defy its instincts and crawl into bright, sunlit areas. There, the pill bug stands out like a neon sign blinking "eat me," and starlings are happy to oblige. The worm's eggs pass through the starling and get plastered on plants in the bird's droppings. If a pill bug eats the plants, the sinister cycle starts again.



Braconid wasp

Cabbageworm

# Invasion of the Body Hatchers

A braconid wasp is a cabbageworm's worst nightmare. The tiny wasp injects eggs inside a doomed caterpillar using a dagger-like appendage called an ovipositor. To protect the little wasps-to-be, the eggs are coated with a virus that turns off the caterpillar's immune system. The virus also has other, *creepier* consequences.

Once the eggs hatch, the rice-sized baby wasps, called larvae, feast on the cabbageworm's blood and fluids. To keep their squirming nursery alive, the larvae avoid eating the cabbageworm's vital organs. When the larvae grow large enough, they use saw-like teeth to slice open the caterpillar's tough skin. Then they wiggle out and spin silken cocoons around themselves. Unfortunately, this isn't the end for the unlucky caterpillar.



Cabbageworm

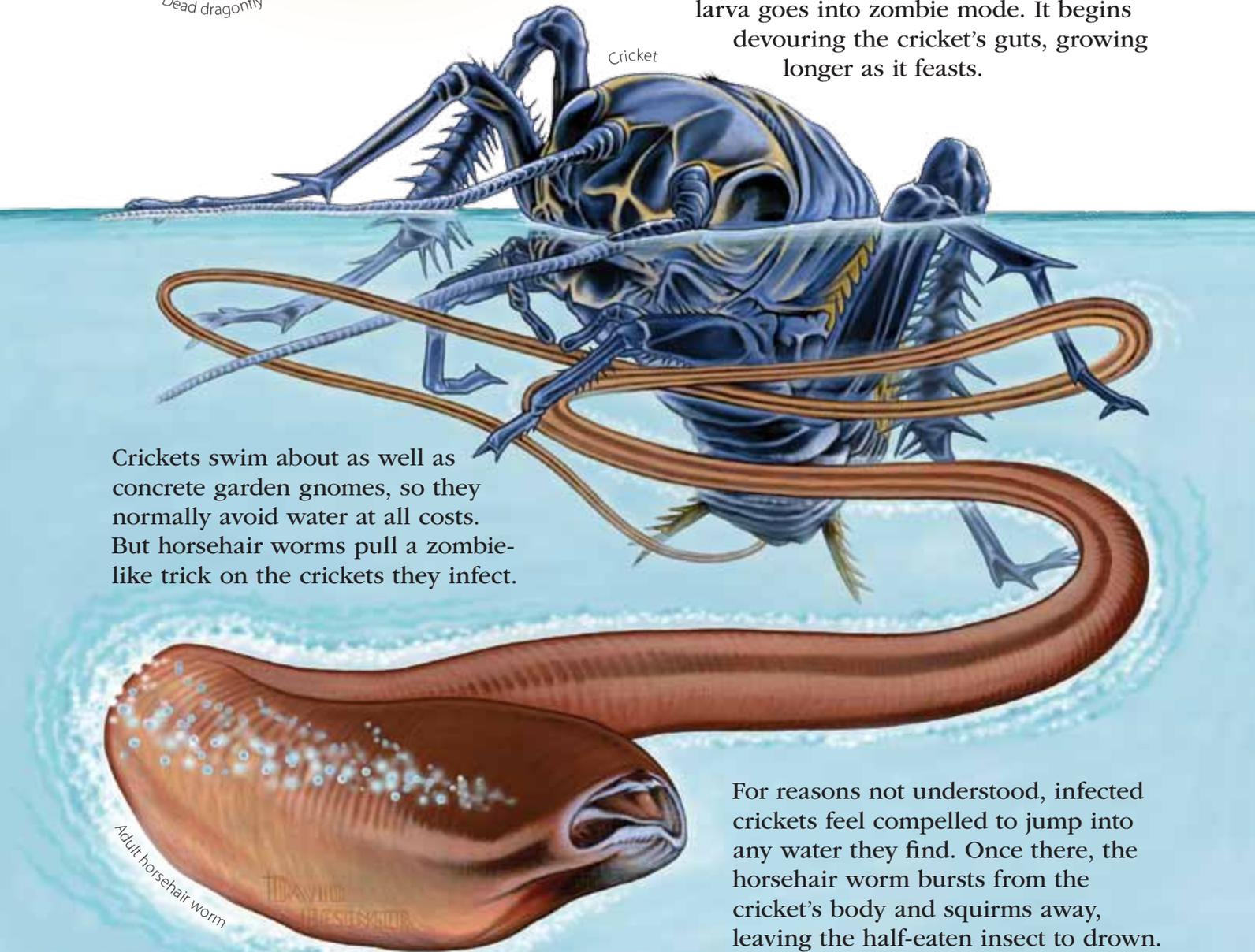
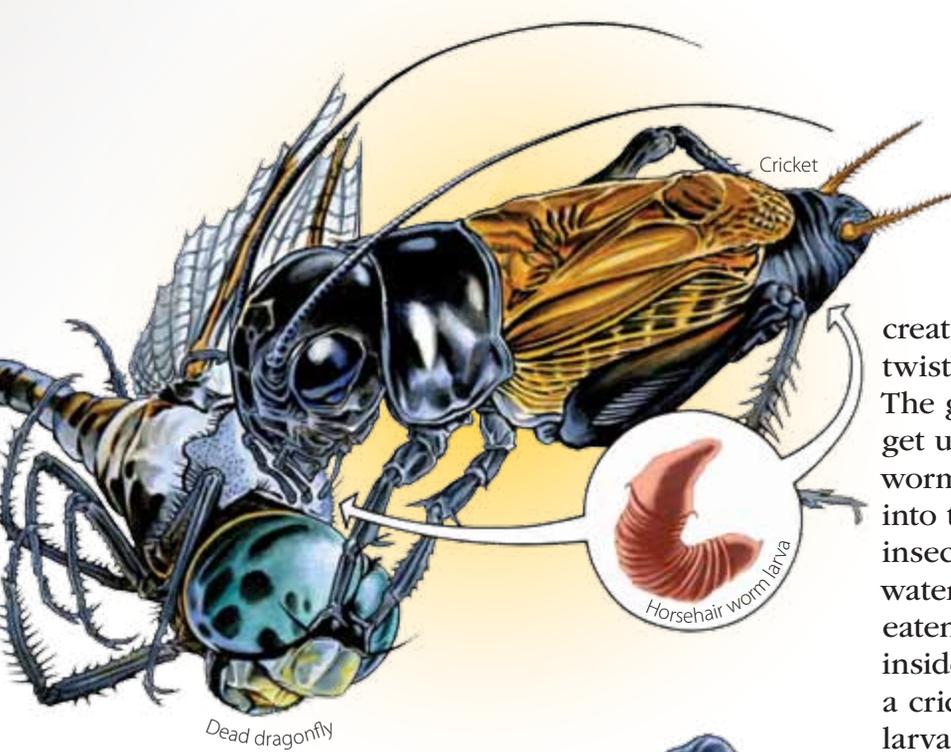
Wasp larva

Wasp cocoons

The virus that protected the wasp eggs now invades the caterpillar's brain, turning the worm into a zombie bodyguard. The caterpillar weaves its own silk over the wasp cocoons, giving them an extra blanket of protection. Then the worm quits eating and stands guard, protecting the cocoons from wasp-eating insects until the caterpillar eventually starves.

# Spawn of the Dead

Horsehair worms appear in late summer in streams, ponds and swimming pools. The creepy creatures writhe about underwater, twisting themselves into squiggly knots. The ghoulish part, though, is how they get underwater in the first place. Female worms lay millions of eggs that hatch into tiny larvae. Some larvae get eaten by insects, such as dragonflies, that live in water as babies but on land as adults. An eaten larva isn't digested; it simply lurks inside the insect, waiting for it to die. If a cricket eats the infested corpse, the larva goes into zombie mode. It begins devouring the cricket's guts, growing longer as it feasts.



Crickets swim about as well as concrete garden gnomes, so they normally avoid water at all costs. But horsehair worms pull a zombie-like trick on the crickets they infect.

For reasons not understood, infected crickets feel compelled to jump into any water they find. Once there, the horsehair worm bursts from the cricket's body and squirms away, leaving the half-eaten insect to drown.

# SUPER SOUTHERN SQUIRRELS

by Matt Seek

Take a field mouse, stretch it to chipmunk size, give it a squirrel's bushy tail, night-vision goggles and a daredevil's wingsuit, and you'd have a super squirrel—aka the southern flying squirrel.

## NIGHT-SHIFT NUT GATHERERS

Although flying squirrels are quite common, most people have never seen one. That's because they're nocturnal. At night, while gray and fox squirrels are curled in their leafy nests dreaming of acorns, flying squirrels dive through the dark, gathering the real thing. To navigate at night, flying squirrels have huge eyes that catch the faintest of moonlight. And when it gets really dark, flying squirrels use long, sensitive whiskers to feel their way around.



## SQUIRREL SPOTTING TIPS

If you have oak or hickory trees in your yard, chances are you also have flying squirrels.

Spotting flying squirrels is easiest in autumn when the squirrels are busy gathering nuts for winter.

Let your eyes adjust to the dark. Stay away from bright lights for about 30 minutes.

A flying squirrel's call sounds like tseet. Also listen for musical chirping and angry squeals.

Put your bird feeder near a porch light. If you hear a soft *whump*, flip on the light to catch a squirrel gobbling seed.

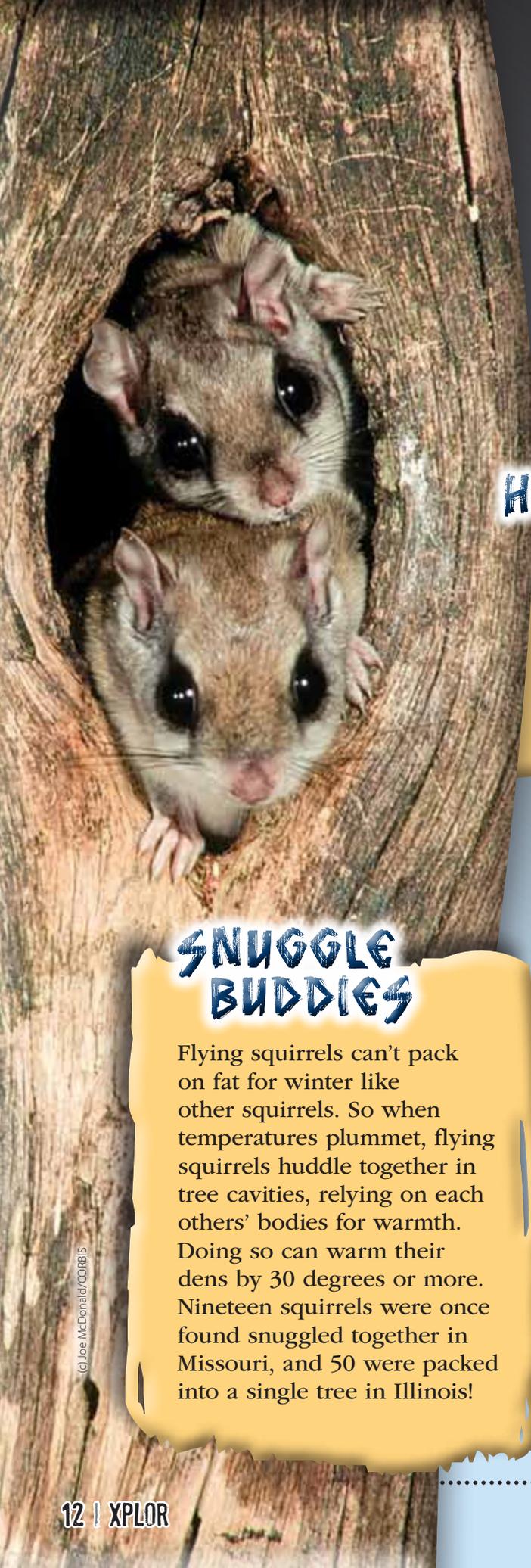
Smear peanut butter on the bark of a tree and wait nearby. Shine a flashlight if you hear something.



## FOREST FLIERS

When a flying squirrel decides to glide, it climbs to a high perch then plunges spread eagle into thin air. *Wheee!* It looks like your crazy uncle doing a belly buster at the pool, only the squirrel doesn't go splat. Draped between the squirrely skydiver's wrists and ankles is a flap of skin called the patagium. When stretched, the patagium billows like a furry parachute. By changing the slack in the patagium and steering with its long, flat tail, the squirrel swoops around branches and sails safely to its destination. With a lofty launch site and a good tailwind, flying squirrels can glide as far as four school buses parked end to end!

(C) Joe McDonald/CORBIS



## HOME SWEET HOLE

Flying squirrels live throughout Missouri in forests, towns, city parks, even backyards—wherever there are large oak or hickory trees. They like to sleep 20 to 30 feet up in old woodpecker holes and other tree cavities. In cities, flying squirrels sometimes live in attics and birdhouses.

## SNUGGLE BUDDIES

Flying squirrels can't pack on fat for winter like other squirrels. So when temperatures plummet, flying squirrels huddle together in tree cavities, relying on each others' bodies for warmth. Doing so can warm their dens by 30 degrees or more. Nineteen squirrels were once found snuggled together in Missouri, and 50 were packed into a single tree in Illinois!



Steve and Dave Maslowski/Photo Researchers/Getty Images

Steve and Dave Maslowski/Photo Researchers/Getty Images



## MIGHTY MOMS

In March, female flying squirrels give birth to litters of about four babies. Newborns are naked, pink and weigh about the same as six paperclips. Mom takes good care of her babies, feeding them milk and wrapping them in her patagium so they stay cozy. She'll try to fight off predators even if they're larger than she is. One mama squirrel was seen carrying her babies, one by one, away from a forest fire and getting singed in the process. When young squirrels are about 6 weeks old, they attempt their first flight. Sometimes mom has to give them a little push to get them to leap, but once airborne, the youngsters know exactly how to glide. After all, they're super squirrels.

## NUTS FOR NUTS

Acorns and hickory nuts fill most of the space in a flying squirrel's tummy. But flying squirrels aren't picky eaters. They'll happily munch moths, beetles, caterpillars, fruits, berries, garden vegetables, tree buds, tree sap, mushrooms, baby mice, baby birds, eggs and birdseed. It isn't a one-sided eating spree, though. Owls, snakes, weasels, foxes and bobcats eat flying squirrels—when they can catch one.



Nicholas Jr./Photo Researchers/Getty Images

# WILD JOBS

**RAPTOR NURSE  
AMBER VANSTRIEM  
HELPS SORE BIRDS  
SOAR AGAIN.**

**Q: WHAT DOES A RAPTOR NURSE DO?**

**A:** I care for injured birds of prey, such as hawks, eagles and owls.

**Q: HOW DO BIRDS END UP IN YOUR CARE?**

**A:** Folks call the Raptor Rehabilitation Center at Mizzou to report injured birds, and we go pick them up. Most have broken wings. Some are starving. Others have injuries to their eyes or talons.

**Q: HOW DO YOU PATCH THEM UP?**

**A:** Birds can't talk, so we check the bird over to see what's wrong. If it has a broken wing, doctors do surgery. If it hasn't been eating, we feed it rats or mice. We keep a chart of the bird's vital signs, treatments and feedings—just like a human patient.

**Q: WHAT'S THE OWL'S NAME?**

**A:** Eskimo Razoo—Mo for short. He was a fluffy gray baby when he came in. It looked like he was wearing a puffy coat like an Eskimo.

**Q: HOW DID YOU GET THOSE SCARS ON YOUR FOREARM?**

**A:** We went to rescue an injured hawk in a tree. My teammate climbed up, and the hawk came down. I grabbed its talons, but apparently my gloves weren't long enough. The hawk clamped down on my forearm and wouldn't let go.

**Q: OUCH! DID YOU SHAKE IT OFF?**

**A:** Shaking would have been bad—for me and the hawk. Instead, I waved my other hand, and the hawk let go to attack it. This time, though, all it got was glove. We named that bird "Tree Hugger."

*Great-horned owl*

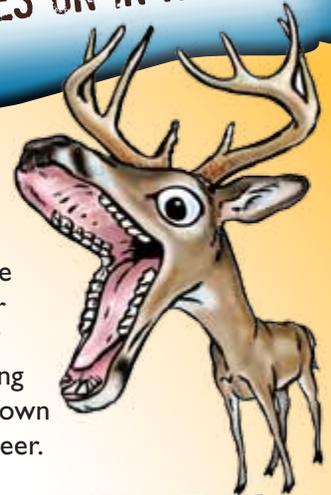
# STRANGE, but TRUE!

YOUR GUIDE TO ALL THE  
**UNUSUAL, UNIQUE,**  
AND **UNBELIEVABLE**  
STUFF THAT GOES ON IN NATURE

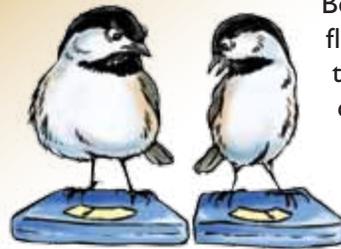
A cottontail can raise 35 rabbits in a year. Whew! That's a bunch of babies. But it pales compared to a **PRAIRIE VOLE'S** output. Missouri's most prolific mama mammal can produce 83 babies a year!



Open wide. Biologists estimate the age of a **WHITE-TAILED DEER** by looking at the deer's teeth. Older deer have fewer "baby teeth" and their molars (chewing teeth) are more worn down than those of younger deer.



**BLACK-CAPPED CHICKADEES** spend nearly every waking moment gathering food. Why?



Because the feathered fluffballs lose nearly a tenth of their weight on chilly nights. That's like a 180-pound man waking up 18 pounds lighter than when he went to bed.

**AMERICAN GOLDFINCHES**

build teacup-sized nests and lash them to shrubs using spider silk. Some goldfinch nests are woven so tightly, they even hold water!



**SHOVELNOSE STURGEONS** use their stretchy mouths like vacuum cleaners to suck insects and mollusks from the muck at the bottoms of rivers. Other fish follow along to snag morsels stirred up by the sturgeons.



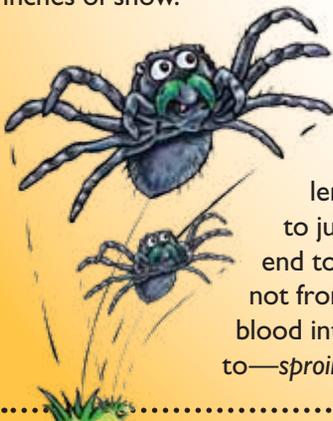
Frogsicle anyone? During winter, **WESTERN CHORUS FROGS** survive being frozen nearly solid for days on end. If that isn't amazing, consider this: While frozen, their hearts quit beating. They. Just. Stop.

**RED FOXES** have super-hero hearing. The crimson canines are particularly tuned to low-frequency sounds, such as those made by rodents rustling around underground. Foxes pounce with pinpoint accuracy even when prey is hidden under inches of snow.



A **JUMPING SPIDER**

can leap 40 times its body length. To do the same, you'd have to jump over 12 minivans parked end to end! The spider's spring comes not from big muscles but from jetting blood into its back legs causing them to—*sproing*—extend rapidly.



# XPLOR MOOR

## FLYING SQUIRREL glider

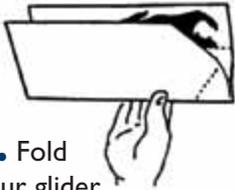
make your own

# SQUIRREL

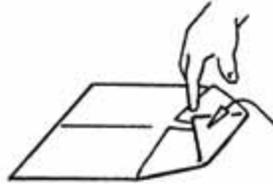


Real flying squirrels can zip 150 feet in a single glide. That's about as long as four school buses parked end to end! Can you make a paper flying squirrel glide that far?

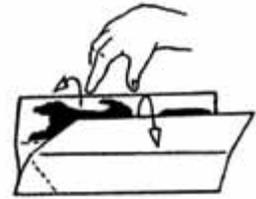
1. Cut out your glider along the solid black line. Don't cut the dashed lines!



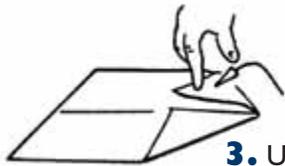
2. Fold your glider in half along the dashed line marked "A" so that the squirrel picture is on the inside.



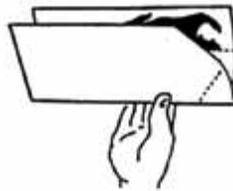
4. Fold the tip of the point inward along dotted line "C."



6. Fold both wings down along dotted line "D."



3. Unfold the glider and place it on a table with the squirrel facing down. Make a point by folding in the corners along the dotted lines marked "B."



5. Pick up the paper and refold line "A."



7. Stick a piece of tape over the tip of the glider and another below the squirrel's tail. Put a paperclip under the squirrel's nose and it's ready to glide! You can bend the tail slightly up or down to make your squirrel loop, turn or roll.

ANSWER TO

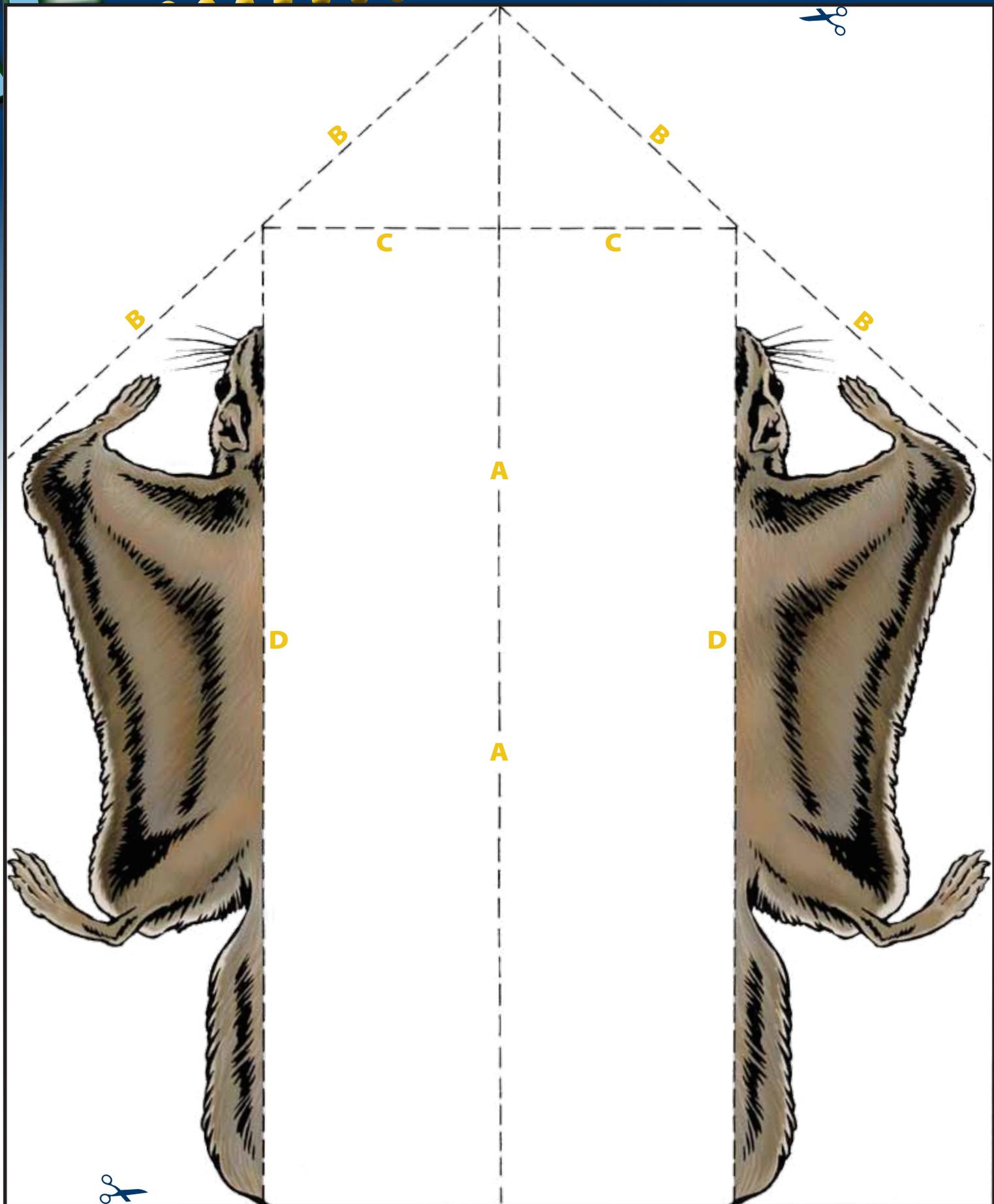
## WHAT IS IT?

FROM  
PAGE 1

Most dabblers, mallards suck water in through their bills, let it squirt out the sides, and strain out seeds, snails and insects. Yum! Dabblers are also called puddle ducks because they live in shallow, marshy areas.

Mallards belong to a group of ducks known as dabblers. Dabblers feed by dipping their heads underwater, leaving their bottoms high and dry. Like





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FREE TO MISSOURI HOUSEHOLDS

## CRITTER CORNER Blue Jay



Aw, nuts! During fall, blue jays gather acorns for winter. A jay can carry three acorns in its throat, one in its mouth and another in the tip of its beak. It flies to a hiding spot, buries the acorns and covers them with leaves. The busy birds even out-squirrel the squirrels. A single jay can stash 5,000 acorns each fall!